

SPECIFICATIONS FOR SMALITE

斯迈得规格书

TOP SL-\*B2835FTA-12EAHH series

2835(PCT)高显白光系列

| Customer<br>客户确认 | Approved<br>批准 | Checked<br>审核 | Prepared<br>编制 |
|------------------|----------------|---------------|----------------|
|                  |                |               |                |

Smalite

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## Descriptions 说明

The product is designed for operation with forward current (voltage) only, and the use of reverse current (voltage) is forbidden.  
本产品仅适用于正向电流(电压), 不可使用反向电流(电压)。



### Features

- Size (mm) 3.5\*2.8\*0.7
- Viewing angle: 120°
- ROHS compliant lead-free soldering compatible
- Warm/White:
- A typical color temperature:  
2700K-6500K

### 特点

- 外观尺寸 (mm) 3.5\*2.8\*0.7
- 发光角度: 120°
- 符合 ROHS 无铅焊接的标准
- 暖白/白光:
- 典型色温:  
2700K-6500K

### Applications

- Channel letter
- Portable lighting
- Decorative lighting
- OA equipment
- Backlighting of full color LCD
- Bulbs and fluorescent lamps

### 应用

- 指示灯
- 便携照明
- 装饰照明
- 办公照明
- 液晶背光
- 家居照明

Mass Production List 批量生产目录

| Product Name<br>产品型号 | CCT  | Ra<br>Min | Φ(lm)<br>Min | Φ(lm)<br>Max | Test conditions<br>测试条件 |
|----------------------|------|-----------|--------------|--------------|-------------------------|
| SL-IB2835FTA-12EAHH  | 2700 | 80        | 60           | 65           | 25℃, IF=150mA           |
| SL-IB2835FTA-12EAHH  | 3000 | 80        | 65           | 70           | 25℃, IF=150mA           |
| SL-NB2835FTA-12EAHH  | 4000 | 80        | 70           | 75           | 25℃, IF=150mA           |
| SL-WB2835FTA-12EAHH  | 5000 | 80        | 70           | 75           | 25℃, IF=150mA           |
| SL-WB2835FTA-12EAHH  | 6500 | 80        | 70           | 75           | 25℃, IF=150mA           |

Notes:备注

- 1.Tolerance of Color Rendering Index: ±2. 显色指数公差 ±2  
2.Tolerance of Luminous flux: ±5%.光通量公差 ±5%

Absolute maximum ratings 最大限定参数(Ta=25℃)

| Parameter 项目名称                     | Symbol 符号 | Value 规格 | Unit 单位 |
|------------------------------------|-----------|----------|---------|
| Power dissipation 消耗功率             | Pd        | 930      | mW      |
| Forward current 正向电流               | IF        | 300      | mA      |
| impulse current 脉冲电流               | IfP       | 450      | mA      |
| Operating temperature range 工作温度范围 | Top       | -35 ~+85 | ℃       |
| Storage temperature range 储存温度范围   | Tstg      | -35 ~+85 | ℃       |
| Heatresistance 热阻                  | Rth       | 28       | ℃/W     |
| Junction temperature 结温            | Tj        | 125      | ℃       |
| Electrostatic Discharge 抗静电能力      | ESD       | 2000     | V       |

## Electro-optical characteristics 主要光电参数(Ta=25℃)

| Parameter<br>项目名称    | Symbol<br>符号 | Min | Typ | Max | Unit | Test Condition<br>测试条件 |
|----------------------|--------------|-----|-----|-----|------|------------------------|
| Forward voltage 正向电压 | Vf           | 2.8 |     | 3.1 | V    | IF=150mA               |
| Luminous flux 光通量    | Φ            | 60  |     |     | lm   | IF=150mA               |
| Viewing Angle 角度     | 2 θ 1/2      |     | 120 |     | Deg  | IF=150mA               |
| Reverse current 反向电流 | IR           |     |     | 10  | μA   | Vr=5V                  |
| Color Index 显色指数     | Ra           | 80  |     |     |      | IF=150mA               |

### NOTES 注释:

\* The measurement of forward voltage maintains a tolerance of  $\pm 0.05V$ , flux maintains a tolerance of  $\pm 5\%$ .

\* 正向电压测量误差  $\pm 0.05V$ , 光通量  $\pm 5\%$ 。

\* Ra measurement tolerance is  $\pm 2$ .

\* Ra 测量误差为  $\pm 2$ 。

\* Rth j-sp is the thermal resistance from LED junction to solder point on MCPCB with electrical power.

\* Rth j-sp 是通电时从 PN 结到铝基板焊点的热阻。

## Bin Range of Chromaticity Coordinate Bin 区分类及色坐标范围

| CCT 典型色温 | 中心点    |        | 主轴 a     | 主轴 b     | 椭圆旋转角度 | 色温范围       |
|----------|--------|--------|----------|----------|--------|------------|
|          | X      | Y      |          |          |        |            |
| A27-Y5   | 0.4578 | 0.4101 | 0.012889 | 0.006685 | 57.28  | 2650-2850K |
| A30-Y5   | 0.4338 | 0.4030 | 0.013910 | 0.006831 | 53.16  | 2930-3200K |
| A35-Y5   | 0.4073 | 0.3917 | 0.015452 | 0.006899 | 52.96  | 3300-3650K |
| A40-Y5   | 0.3818 | 0.3797 | 0.015644 | 0.006725 | 54     | 3780-4250K |
| A45-Y5   | 0.3611 | 0.3658 | 0.016183 | 0.006000 | 59.62  | 4260-4740K |
| A50-Y5   | 0.3447 | 0.3553 | 0.016183 | 0.006000 | 59.62  | 4720-5400K |
| A57-Y5   | 0.3287 | 0.3417 | 0.011029 | 0.004758 | 58.38  | 5350-6000K |
| A60-Y5   | 0.3211 | 0.3347 | 0.011029 | 0.004758 | 58.38  | 5700-6500K |
| A65-Y5   | 0.3123 | 0.3282 | 0.011029 | 0.004758 | 58.38  | 6060-7035K |

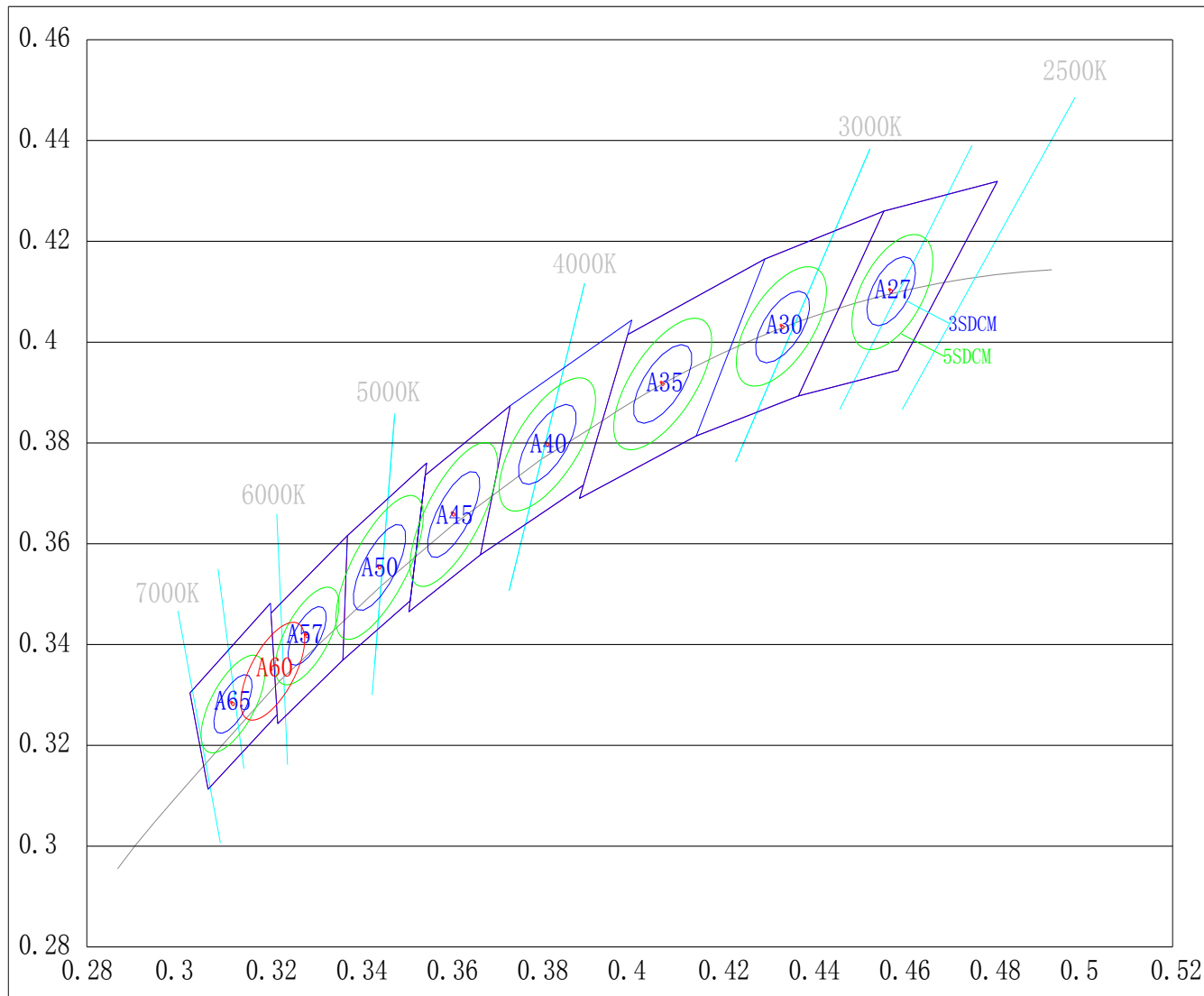
### NOTES 注释

Test and binned at 25C, IF=额定电流

Tester tolerance:  $\pm 0.01$  in x and y coordinates.

## CIE Chromaticity Diagram

色区图



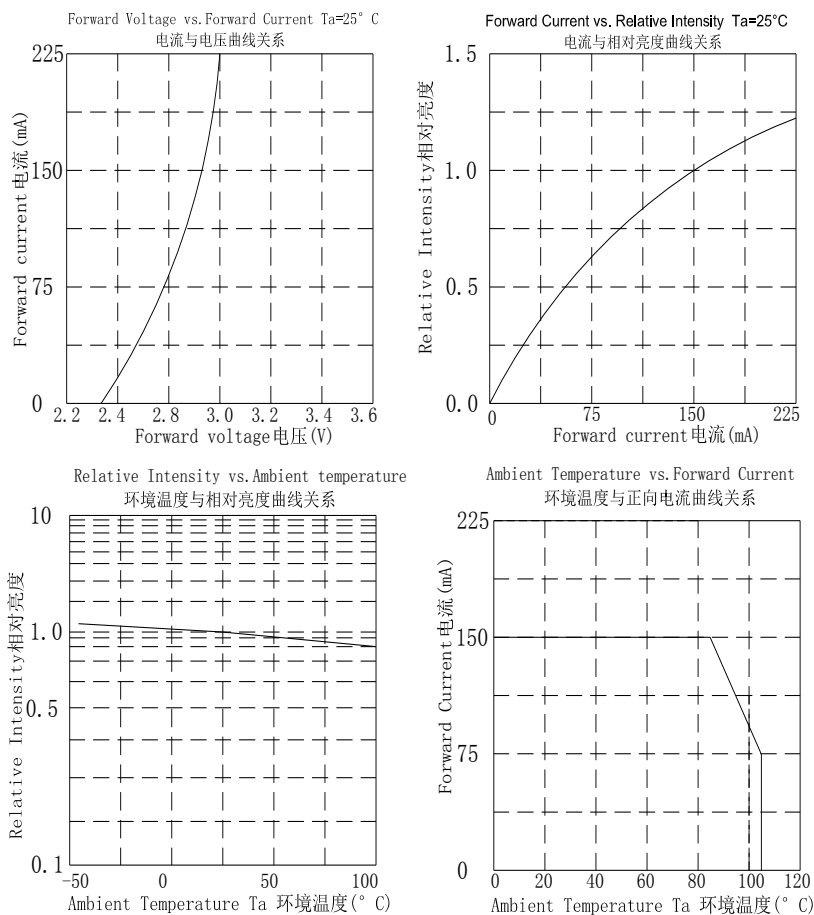
## Reliability Test Items And Conditions 信赖性测试项目及条件

| Test Items<br>测试项目                                   | Test condition<br>测试条件                      | Time<br>时间 | Quantity<br>数量 | Ac/Re<br>接受、拒收 |
|------------------------------------------------------|---------------------------------------------|------------|----------------|----------------|
| ReflowSoldering<br>回流焊                               | Temp. :260°C/10sec.                         | 6Min.      | 22pcs          | 0/1            |
| Thermal Shock<br>冷热冲击                                | -40~125C,<br>15min dwell,<br>10sec transfer | 100Cycles  | 22pcs          | 0/1            |
| HighTemperature High<br>Humidity life Test<br>高温高湿通电 | 85°C,85%RH,<br>IF=150mA                     | 1000Hrs.   | 10pcs          | 0/1            |
| LowTemperature Storage<br>低温保存                       | Ta=-40°C                                    | 1000Hrs.   | 10pcs          | 0/1            |
| HighTemperature Storage<br>高温保存                      | Ta=100°C                                    | 1000Hrs.   | 10pcs          | 0/1            |
| HighTemperature<br>Operation Life Test<br>高温通电       | Ta=105°C,<br>IF =150mA.                     | 1000Hrs.   | 10pcs          | 0/1            |

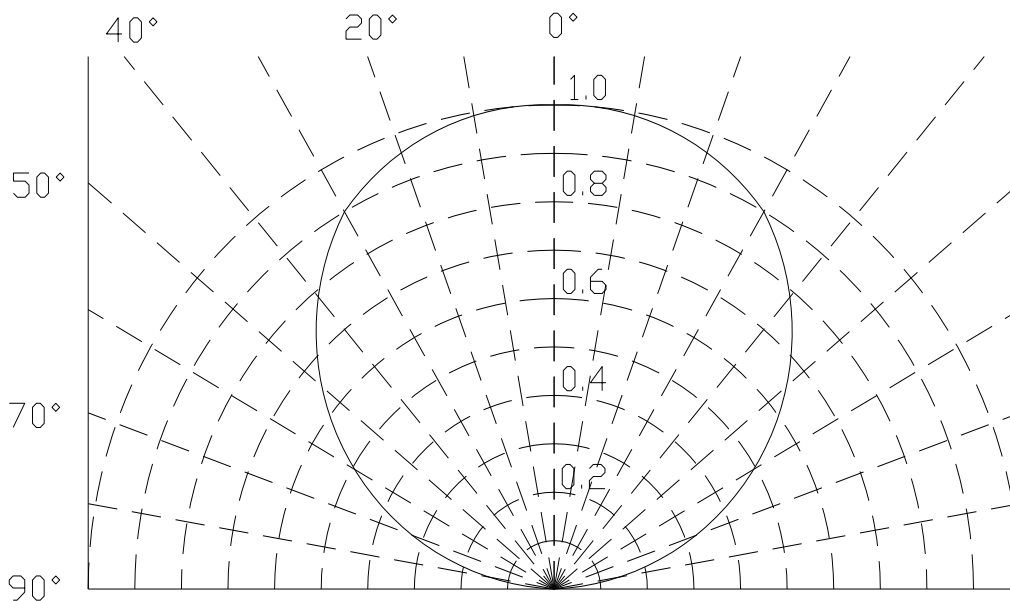
## Failure Criteria 失效判断标准

| Item<br>项目              | Symbol<br>符号   | Failure Criteria<br>判断标准 |
|-------------------------|----------------|--------------------------|
| Luminous Flux<br>光通量    | Lm             | $\geq 70\%$              |
| Forward voltage<br>正向电压 | VF             | $\pm 10\%$               |
| Colour<br>坐标点           | CIE_X<br>CIE_y | $\pm 0.01$               |

## Typical optical characteristics curves 光电特性曲线

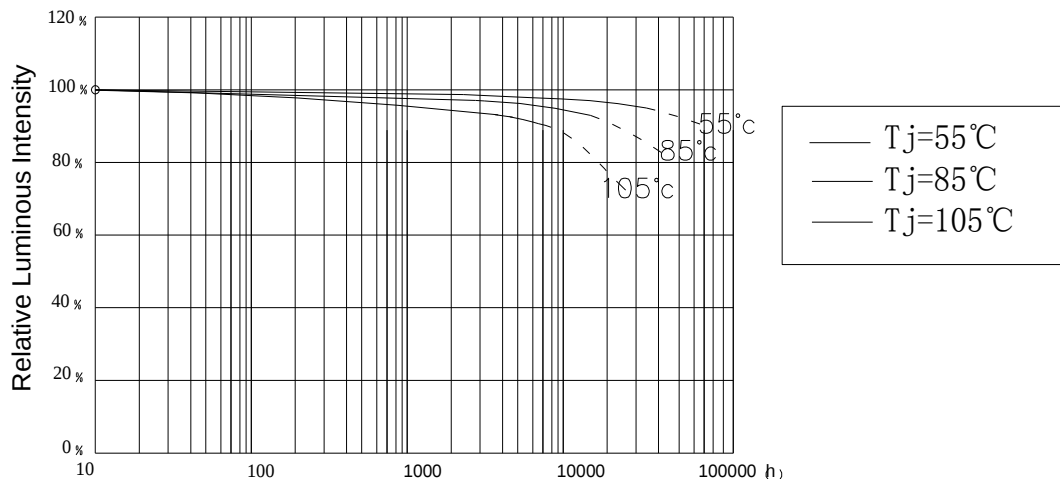


## Curves of beam angle and relative brightness

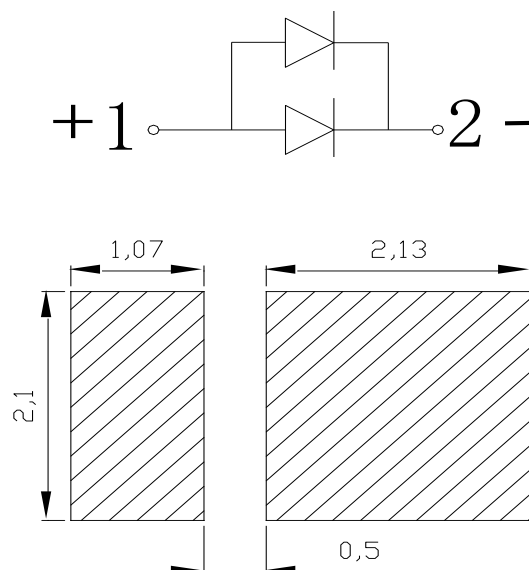
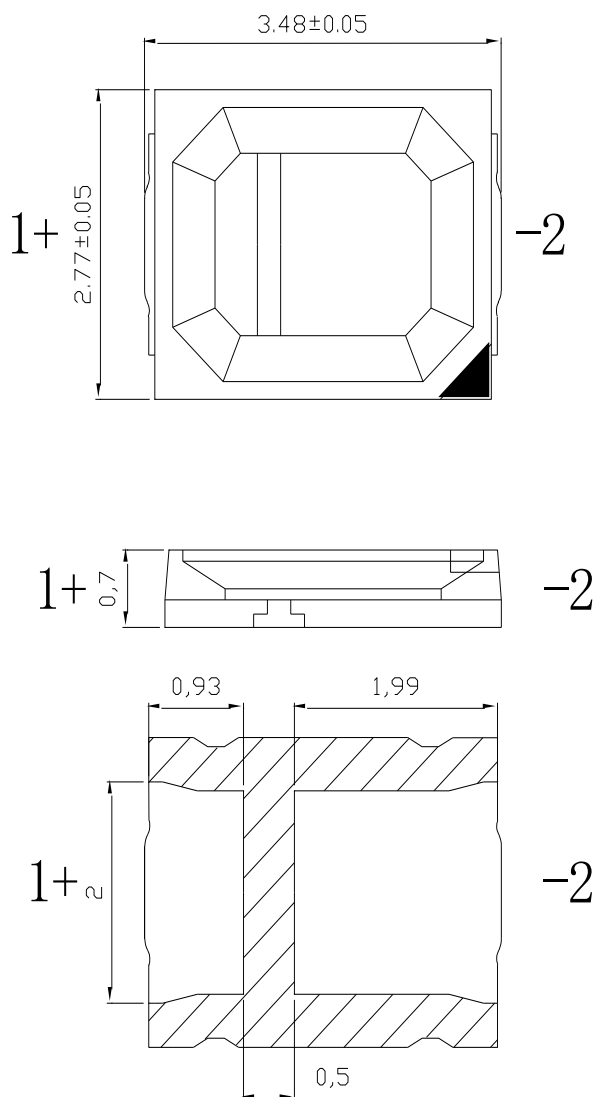


life test:

Affect of Tj on Luminous Maintenance  
(If=150mA)  
(Dot line: Expected Life)

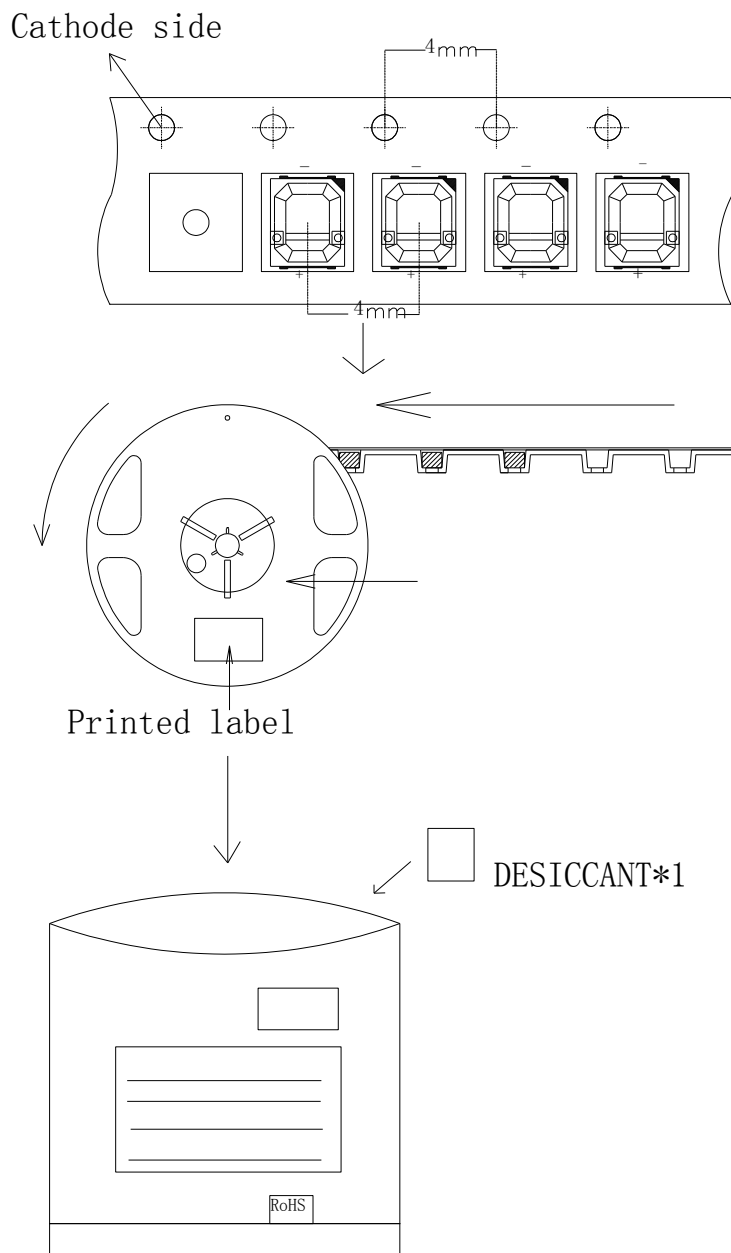


**Mechanical Dimensions 外观尺寸: Unit 单位 (mm)**



**For reflow soldering 建议焊盘尺寸**

## Packaging 包装

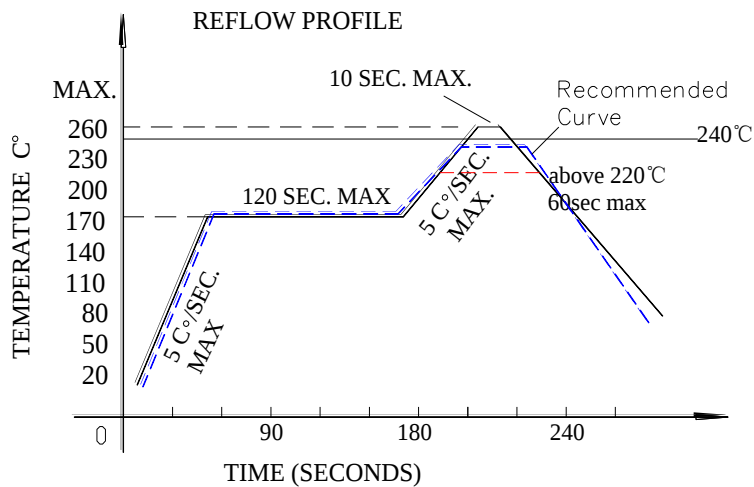


### NOTES 备注:

1. Empty component pockets are sealed with top cover tape;  
预留载带空位也贴有上封带
2. The maximum number of missing lamps is two;  
最多缺失的 LED 不能超过两颗
3. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.  
根据 ANSI/EIA RS-481 的规格,产品的负极指向卷带的导孔.
4. 4,000 pcs / Reel or 16,000 pcs / Reel.  
4,000 颗/卷或 16,000 颗/卷

## Specifications 规格

### 一、 Requirements for application and reflow soldering 应用及回流焊要求:



Reflow soldering curve 回流焊曲线图

| Temperature setting  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |     |       |      |      |     |       |       |      |     |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-------|------|------|-----|-------|-------|------|-----|
| type                 | Warm Zone                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | one | two | three | four | five | six | seven | eight | nine | ten |
| 10-zone mode         | on                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 120 | 135 | 160   | 190  | 215  | 245 | 260   | 245   | 210  | 190 |
|                      | down                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 120 | 135 | 160   | 190  | 215  | 245 | 260   | 245   | 210  | 190 |
| 8- zone mode         | on                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 120 | 150 | 180   | 210  | 245  | 260 | 235   | 195   | /    | /   |
|                      | down                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 120 | 150 | 180   | 210  | 245  | 260 | 235   | 195   | /    | /   |
| points for attention | <p>1. In the process of reflow welding, avoid excessive internal stress in lamp bead caused by excessive temperature drop in the end, resulting in glue crack, stripping and even dead lamp phenomenon, resulting in quality hidden trouble;</p> <p>回焊过程中, 尽量避免末段温度下降过快, 造成灯珠内部产生过大的内应力, 引发胶裂、剥离乃至死灯现象, 造成品质隐患;</p> <p>2. The semi-finished product of the welding machine needs to be cooled for more than 1 minute, and be handled gently to prevent the lamp bead from dying.</p> <p>对刚出回焊机的半成品需要冷却 1 分钟以上, 轻拿轻放, 防止灯珠死灯。</p> |     |     |       |      |      |     |       |       |      |     |

### ■ Notes for reflow soldering 回流焊注意事项:

- No more than twice for reflow soldering.  
注意回流焊不可超过两次。
- To ensure the quality of our LEDs, we encapsulate them with silica gels. So please do not put pressure on the LEDs.  
为保证产 LED 质量及可靠性我司采用硅胶封装, 胶体表面较软, 焊接加热过程中, 不可施加压力在 LED 表面。
- Please choose the right nozzle(try to learn from the plastic products parts) to avoid the damage to products due to the pressure.  
在吸嘴的选取上要选择吸嘴的大小和压力合适的吸嘴 (尽量吸取产品的塑胶部分), 以避免造成压力过大伤害产品。
- Please put on the antistatic hand loop during the use. The worktable should be with antistatic finish. The equipments must be contacted with ground.  
LED 为静电敏感产品, 使用时请佩带防静电手环, 工作台做好防静电处理, 机台设备等保证接地。

■ **Handwork soldering** 手工焊接:

1. During the soldering, the electronic soldering iron must be kept under the temperature of 300°C and the soldering time must not be beyond 3 seconds. No touch between the electronic soldering iron and colloid.  
手工焊接时, 要保持电烙铁温度在 300 摄氏度以下, 并且焊接时间小于 3 秒, 电烙铁不可接触胶体。
2. Handwork soldering is only allowed once. We won't take responsibility for more than that.  
手工焊接只可进行一次, 重复焊接不保证产品是否完好。
3. Avoid using sharp objects to compress products Colloidal Part directly.  
避免使用尖锐的物体直接接触产品胶体部分。
4. Please put on the antistatic hand loop during the use. The worktable should be with antistatic finish. The equipments must be contacted with ground.  
LED 为静电敏感产品, 使用时请佩戴防静电手环, 工作台做好防静电处理, 机台设备等保证接地。

## 二、**Storage conditions** 储存条件

### Before opening the package 打开包装袋前:

1. The LEDs can be preserved for 1 year in condition of temperature no more than 30°C and humidity no more than 60%RH. Recommended for moisture-proof foil bag with desiccant packaging methods and stored in the constant temperature and humidity box. Can not reach the requirements under the environment of the guarantee as far as possible in six months after use.  
在温度不超过30°C及湿度不超过60%RH 条件下, LED 可以保存一年, 建议采用带干燥剂的防潮铝箔袋的包装方式, 存放在恒温恒湿箱中。达不到要求的环境下, 尽量保证在6个月内使用完毕。

### After opening the package 打开包装后:

1. The SMD LEDs should be run out with 12hours in condition of temperature no more than 30°C and humidity no more than 60%RH. The rest products should be pressurized in vacuum condition with desiccants. Stored for more than 7 days, next time also must be dehumidification, the dehumidification conditions is 70°C with 12hours.  
开封后, LED 在 $\leq 30^{\circ}\text{C}$ ,  $\leq 60\%\text{RH}$  相对湿度的条件下, 12 小时内完成贴片作业, 未用完的产品重新真空密封, 并放置在一个密封容器中, 同时必须使用干燥剂。存储超过7 天, 下次使用时同样需要除湿操作, 除湿条件为70°C 12 小时。
2. The sealed storage products stock in the drying cabinet more for than one month, then must be dehumidified before used, and the dehumidified conditions is 70°C 24 hours.  
密封的产品在干燥箱中存储超过1个月的, 须经过深度除湿作业才能上线, 除湿条件: 70°C 24小时。
3. If the product does not vacuum sealed packaging, and in the air for more than 40hours, this product must be removed from the tape of reel and put into the steel plate to dehumidify with 150°C 2 hours, then could ensure the quality of the product after the soldering operation.  
如果产品没有真空包装密封保存, 且在空气中放置超过40小时, 此产品必须从载带中拆出, 放入钢盘进行150°C 2小时的除湿, 之后进行回流焊作业才能保证产品品质。